Students' projects are helping people

Michael Davis, a 7-year-old boy born with spina bifida, wanted to use the pedals while taking piano lessons, but his disability prevented him from doing so. His piano teacher, Janice Shriver, contacted the College of Engineering at the University of Maine. She asked for help in devising a way for Michael to work the pedals.

Two mechanical-engineering technology (MET) seniors designed a portable chair with a head-actuated device to depress the pedals on a piano. According to MET Professor Herbert Crosby, Scott DeLong and Jim Howes experimented a long time before creating a comfortable, functional system for Michael.

The project represents one of many done by MET seniors. As part of their final grade, these seniors must design and fabricate a human-powered device or vehicle — and it must work.

Crosby, Assistant MET Professor David Dvorak, and Instructor Carroll Madden work with the engineering students who annually design and build projects that benefit disabled people.

The process begins in the fall, when the approximately 30 seniors enrolled in a two-semester design course split into several teams. Each team tackles a different project or a variation of the same theme. Examples have included:

- In 1989, seniors Jeffrey Landwehr, Michael Lovley, and Lawrence Sparks designed and built a bath chair that a woman could use to maneuver her disabled son into a tub;
- The same year, seniors Edward Dodge and David Stoll created an activity box for a 20-year-old man with cerebral palsy;
- MET seniors Curt Humphrey, Greg Linscott, and Gary West worked many hours to perfect a dressing enclosure that enabled Bangor resident Susan Marsh to dress herself;
- In 1991, the teams designed, built, and tested human-powered boats and canoes that could be used by people with no arms.

The emphasis has not always been placed on projects that benefitted people, Crosby said. Beginning with a stair-climbing wheelchair in 1984, projects were supposed to create human-powered "vehicles that would do things we hadn't seen done before, such as amphibious vehicles," he explained.

The students soon branched into public-service projects. "The students in the last five years have shown a strong interest in helping others," Crosby said. "They select the projects, which speaks highly of the students, doesn't it?"

A typical project might take more than 500 hours to complete. Referring to the dressing enclosure designed for the Bangor woman, Crosby remembered the many times that the team "tested their enclosure, then brought it back and modified it.

"They didn't give up," he said. "As far as the students are concerned, we can do anything. They're open-minded and enthusiastic, and they never quit. That's an amazing thing. Their perseverance is surprising; I like that.

"They have a lot of fun. I think they enjoy being creative, designing something that has never been designed before," Crosby stated.

The projects provide an opportunity for the MET students to practice what they've learned. Students also develop teamwork and communications skills. "I tell them (that) those are skills they're going to need in industry," Crosby said.

Faculty members closely monitor the projects, which team members record in log books. Neither he nor Dvorak and Madden seldom suggest a different way to tackle a project, Crosby said. "We're there to answer questions when need be, but the projects are the students'. We don't interfere by saying, 'Hey, here's another way you could do this.'"

He believes the students find the hands-on experience invaluable. Studying theory in the classroom has its place, Crosby said, but applying it to real-life situations makes it come alive.

The program receives outstanding support from Maine businesses. Since the state provides no funding for materials, students seek donations from various firms. "Without industry, we wouldn't be able to do any of these projects."

THREE STUDENTS AT the University of Maine's School of Engineering Technology designed, built, and tested a dressing enclosure for Bangor resident Susan Marsh (center), who has cerebral palsy. The enclosure enables Marsh to dress herself and to perform other bathroom routines more easily and safely. Gary West (left) of Woolwich, Curt Humphrey of Washburn, and Greg Linscott (not pictured) of Augusta worked on the project. (Photo courtesy of UM Department of Public Affairs)